

FORM PTO-1449 (Modified)

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT (Use several sheets if necessary)

Attorney Docket No.: 102-020522US

Application No.: 08/621,879

Applicant: Stemmer et al.

Unassigned

Filing Date: March 25, 1996

Group: 1634

Reference Designation

U.S. PATENT DOCUMENTS

Page 1

Examiner Initial	Document No.	Date	Name	Class	Sub-class	Filing Date (If Applicable)
AA	5,830,721	11/03/98	Stemmer et al.			
AB	5,811,238	09/22/98	Stemmer et al.			
AC	5,763,192	06/09/98	Kauffman et al.			
AD	5,723,323	03/03/98	Kauffman et al.			
AE	5,814,476	09/29/98	Kauffman et al.			
AF	5,817,483	10/06/98	Kauffman et al.			
AG	5,824,514	10/20/98	Kauffman et al.			
AH						
AI						
AJ						
AK						
AL						
AM						
AN						
AO						
AP						

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub-class	Translation (Yes/No)

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER

DATE CONSIDERED

12/11/03

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and re-considered. Include copy of this form with next communication to applicant.

COPY FROM PARENT

(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

Substitute for form 1449A-B/PTO		Complete if Known			
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	09/17449 09/954,692		
COPY FROM PARENT		Filing Date	November 18, 2000 09/13/2001		
(use as many sheets as necessary)		First Named Inventor	Phillip A. Patten		
		Group Art Unit	Unassigned		
		Examiner Name	Unassigned		
		Attorney Docket Number	02-02052005 02-02052205		

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code (if known)		
	AA	6,096,548		Stemmer	08-01-2000
	AB	6,117,679		Stemmer	09-12-2000
	AC	6,132,970		Stemmer	10-17-2000

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Office	Number	Kind Code (if known)		
	AD	WO	98/42832		Cal Tech	10-01-1998
	AE	WO	98/41653		Novo Nordisk	09-24-1998
	AF	WO	99/29902		Cal Tech	06-17-1999

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS						
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.				
	AG	CARTER, "Improved Oligonucleotide-Directed Mutagenesis Using M13 Vectors," <u>Methods in Enzymology</u> , 154:382 (1987)				
	AH	KRAMER AND FRITZ, "Oligonucleotide-Directed Construction of Mutations via Gapped Duplex DNA," <u>Methods in Enzymology</u> , 154:360-367 (1987).				
	AI	KUNKEL, "Rapid and efficient site-specific mutagenesis without phenotypic selection," <u>PNAS</u> , 82:488-492 (Jan. 1985).				
	AJ	KUNKEL et al., "Rapid and Efficient Site-Specific Mutagenesis without Phenotypic Selection," <u>Methods in Enzymology</u> , 154:367-382 (1987).				
	AK	ZOLLER AND SMITH, "Oligonucleotide-Directed Mutagenesis: A Simple Method using Two Oligonucleotide Primers and a Single-Stranded DNA Template," <u>Methods in Enzymology</u> , 154:329 (1987).				
	AL	PRODROMOU et al., (1992) "Recursive PCR: a novel technique for total gene synthesis." <u>Protein Engineering</u> 5(8): 827-829.				
	AM	Statutory Declaration signed by Ruth Bird as filed in pending Australian opposition case, Australian Application No. 703264.				
	AN	Statutory Declaration signed by Ngaire Pettit-Young as filed in pending Australian opposition case, Australian Application No. 703264				
	AO	Statutory Declaration signed by Mae Li Gan as filed in pending Australian opposition case, Australian Application No. 703264.				

Examiner Signature	<i>hnn</i>	Date Considered	12/11/07
--------------------	------------	-----------------	----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

COPY FROM PARENT

FORM PTO-1449 (Modified)	Attorney Docket No. 10097-02050002-02DS22US	Serial No.: 00/769,062 <u>unassigned</u>
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	Applicant: PHILLIP A. PATTEN et al.	
	Filing Date: <u>12/18/96</u> <u>unassigned</u>	Group: Unknown

Reference Designation		U.S. PATENT DOCUMENTS				
Examiner Initial	Document No.	Date	Name	Class	Sub-class	Filing Date (If Appropriate)
AA	3,817,837	06/18/74	Rubenstein et al.	195		
AB	3,850,752	11/26/74	Schuurs et al.	G01N 31	14	PRO 09/12/01
AC	3,939,350	02/17/76	Kronick et al.	G01T 1	20	5/16/92
AD	3,996,345	12/07/76	Ullman et al.	G01N 21	00	5/16/92
AE	4,275,149	06/23/81	Litman et al.	B12Q 1	66	5/16/92
AF	4,277,437	07/07/81	Maggio	G01N 33	54	5/16/92
AG	4,366,241	12/28/82	Tom et al.	G01N 33	54	5/16/92
AH						
AI						
AJ						
AK						
AL						

FOREIGN PATENT DOCUMENTS						
	Document No.	Date	Country	Class	Sub-class	Translation (yes/no)
AM	WO 94/12305	06/09/94	PCT	B23B 51	00	Yes
AN	WO 95/11995	05/04/95	PCT	C12Q 1	68	No
AO						
AP						
AQ						

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)	
AR	An, S. et al., "Cloning, sequencing and tissue distribution of two related G protein-coupled receptor candidates expressed prominently in human lung tissue," <u>FEBS Letts.</u> 375:121-124 (1995)
AS	Andersson D.I. et al., "Muller's ratchet decreases fitness of a DNA-based microbe," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 93:906-907 (1996)
AT	Barak, L.S. et al., "The Conserved Seven-Transmembrane Sequence NP(X) _{2,3} Y of the G-Protein-Coupled Receptor Superfamily Regulates Multiple Properties of the β_2 -Adrenergic Receptor," <u>Biochemistry</u> 34:15407-15414 (1995)
AU	Barnes, W.M., "PCR amplification of up to 35-kb DNA with high fidelity and high yield from λ bacteriophage templates," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 91:2216-2220 (1994)
AV	Barry, M.A. et al., "Toward cell-targeting gene therapy vectors: Selection of cell-binding peptides from random peptide-presenting phage libraries," <u>Nature Med.</u> 2(3):299-305 (1996)

FORM PTO-1449 (Modified)		Attorney Docket No. 18097-020500	Serial No.: 08/759,062 <i>Unassigned</i>
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant: PHILLIP A. PATTEN et al.	
		Filing Date: <i>12/18/96</i>	Group: Unknown
AW	Benka, M.L. et al., "The thrombin receptor in human platelets is coupled to a GTP binding protein of the $\text{G}\alpha_i$ family," <i>FEBS Letts.</i> 363:49-52 (1995)		
AX	Berek, C. et al., "Mutation Drift and Repertoire Shift in the Maturation of the Immune Response," <i>Immunological Reviews</i> 96:23-41 (1987)		
AY	Bird, R.E. et al., "Single-Chain Antigen-Binding Proteins," <i>Science</i> 242:423-426 (1988)		
AZ	Broach, J.R. et al., "High-throughput screening for drug discovery," <i>Nature Supp.</i> 384:14-16 (1996)		
BA	Cadwell, R.C. et al., "Randomization of Genes by PCR Mutagenesis," <i>PCR Methods and Applications</i> 2:28-33 (1992)		
BB	Cantwell, C.A. et al., "Cloning and expression of a hybrid <i>Streptomyces clavuligerus</i> cef E gene in <i>Penicillium chrysogenum</i> ," <i>Curr. Genet.</i> 17:213-221 (1990)		
BC	Chen, C.C.H. et al., "Structure of a Phosphonate-inhibited β -Lactamase, An Analog of the Tetrahedral Transition State/Intermediate of β -Lactam Hydrolysis," <i>J. Mol. Biol.</i> 234:165-178 (1993)		
BD	Chen, K. et al., "Tuning the activity of an enzyme for unusual environments; Sequential random mutagenesis of subtilisin E for catalysis in dimethylformamide," <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 90:5618-5622 (1993)		
BE	Chong, S. et al., "Protein Splicing Involving the <i>Saccharomyces cerevisiae</i> VMA Intein," <i>J. Biol. Chem.</i> 271(36):22159-22168 (1996)		
BF	Courtney, L.P. et al., "An anti-IL-2 antibody increases serum halflife and improves anti-tumor efficacy of human recombinant interleukin-2," <i>Immunopharmacology</i> 28:223-232 (1994)		
BG	Crameri, A. et al., "Construction and evolution of antibody-phage libraries by DNA shuffling," <i>Nature Medicine</i> 2(1):100-102 (1996)		
BH	Crameri, A. et al., "Improved Green Fluorescent Protein by Molecular Evolution Using DNA Shuffling," <i>Nature Biotech.</i> 14:315-319 (1996)		
BI	Dangl, J.L. et al., "Rapid Isolation of Cloned Isotype Switch variants Using Fluorescence Activated Cell Sorting," <i>Cytometry</i> 2(6):395-401 (1982)		
BJ	Dierick, H. et al., "Incorporation of DITP or 7-deaza dGTP during PCR improves sequencing of the product," <i>Nucl. Acids Res.</i> 21(18):4427-4428 (1993)		
BK	Duncan, R. et al., "Polymer Conjugates, Pharmacokinetic Considerations for Design and Development," <i>Clin. Pharmacokinet.</i> 27(4):290-306 (1994)		
BL	Dunn, I.S., "Assembly of Functional Bacteriophage Lambda Virions Incorporating C-Terminal Peptide or Protein Fusions with the Major Tail Protein," <i>J. Mol. Biol.</i> 248:497-506 (1995)		
BM	Fish, E.N. et al., "Human Leukocyte Interferon Subtypes have Different Antiproliferative and Antiviral Activities on Human Cells," <i>Biochem. Biophys. Res. Commun.</i> 112(2):537-546 (1983)		
BN	Gascoigne, N.R.J. et al., "Secretion of a chimeric T-cell receptor-immunoglobulin protein," <i>Proc. Natl. Acad. Sci. U.S.A.</i> 84:2936-2940 (1987)		
BO	Gates, C.M. et al., "Affinity Selective Isolation of Ligands from Peptide Libraries Through Display on a lac Repressor 'Headpiece Dimer,'" <i>J. Mol. Biol.</i> 255:373-386 (1996)		

FORM PTO-1449 (Modified)		Attorney Docket No. 18097-020500 <i>02-02052205</i>	Serial No.: 08/769,062 <i>unassigned</i>
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant: PHILLIP A. PATTEN et al. <i>unassigned</i>	
		Filing Date: <i>12/16/96</i>	Group: Unknown
BP	Gram, H. et al., "Phage display as a rapid gene expression system: production of bioactive cytokine-phage and generation of neutralizing monoclonal antibodies," <u>J. Immunological Methods</u> 161:169-176 (1993)		
BQ	Hartl, F.U., "Molecular chaperones in cellular protein folding," <u>Nature</u> 381:571-580 (1996)		
BR	Higazi, A.A et al., "Single-Chain Urokinase-Type Plasminogen Activator Bound to its Receptor is Relatively Resistant to Plasminogen Activator Inhibitor Type 1," <u>Blood</u> 87(9):3545-3549 (1996)		
BS	Hogan, J.C., "Directed combinatorial chemistry," <u>Nature Supp.</u> 384:17-19 (1996)		
BT	Holskin, B.P. et al., "A Continuous Fluorescence-Based Assay of Human Cytomegalovirus Protease Using a Peptide Substrate," <u>Anal. Biochem.</u> 226:148-155 (1995)		
BU	Horisberger, M.A. et al., "Interferon-Alpha Hybrids," <u>Pharmac. Ther.</u> 66(3):507-534 (1995)		
BV	Hu, R. et al., "Evidence for Multiple Binding Sites for Several Components of Human Lymphoblastoid Interferon- α ," <u>J. Biol. Chem.</u> 268(17):12591-12595 (1993)		
BW	Janda, K.D. et al., "Direct selection for a catalytic mechanism from combinatorial antibody libraries," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 91:2532-2536 (1994)		
BX	Kang, Y.S. et al., "Effects of Expression of Mammalian G α and Hybrid Mammalian-Yeast G α Proteins on the Yeast Pheromone Response Signal Transduction Pathway," <u>Mol. Cell Biol.</u> 10(6):2582-2590 (1990)		
BY	Khosla, C. et al., "Generation of polyketide libraries via combinatorial biosynthesis," <u>TIBTECH</u> 14 (1996)		
BZ	Kim, B. et al., "Human immunodeficiency virus reverse transcriptase substitutes for DNA polymerase I in <i>Escherichia coli</i> ," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 92:684-688 (1995)		
CA	Kirpekar, F. et al., "7-Deaza Purine Bases Offer a Higher Ion Stability in the Analysis of DNA by Matrix-assisted Laser Desorption/Ionization Mass Spectrometry," <u>Rapid Communications in Mass Spectrometry</u> 9:525-531 (1995)		
CB	Kontsek, P., "Human Type I Interferons: Structure and Function," <u>Acta Virologica</u> 38:345-360 (1994)		
CC	Kristensen, C. et al., "A single-chain insulin-like growth factor I/insulin hybrid binds with high affinity to the insulin receptor," <u>Biochem. J.</u> 305:981-986 (1995)		
CD	Langer, J.A. et al., "Binding of Human Alpha-Interferons to Natural Killer Cells," <u>J. Interferon Res.</u> 6:97-105 (1986)		
CE	Lathrop, R.H. et al., "Global Optimum Protein Threading with Gapped Alignment and Empirical Pair Score Functions," <u>J. Mol. Biol.</u> 255:641-665 (1996)		
CF	Levichkin, I.V. et al., "A New Approach to Construction of Hybrid Genes: Homolog Recombination Method," <u>Mol. Biol.</u> 29(5):572-577 (1995)		
CG	Li, J. et al., "Single Chain Human Interleukin 5 and Its Asymmetric Mutagenesis for Mapping Receptor Binding Sites," <u>J. Biol. Chem.</u> 271(4):1817-1820 (1996)		
CH	Lotze, M.T. et al., "High-Dose Recombinant Interleukin 2 in the Treatment of Patients with Disseminated Cancer," <u>J. Amer. Med. Assoc.</u> 256(22):3117-3124 (1986)		

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT
(Use several sheets if necessary)

02-020500-225

Applicant: PHILLIP A. PATTEN et al.

unassigned

Filing Date: 12/18/96

Group: Unknown

CI	Lundberg, K.S. et al., "High-fidelity amplification using a thermostable DNA polymerase isolated from <i>Pyrococcus furiosus</i> ," <u>Gene</u> 108:1-6 (1991)
CJ	Mattheakis, L. C. et al., "As <i>in vitro</i> polysome display system for identifying ligands from very large peptide libraries," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 91:9022-9026 (1994)
CK	Matthews, D.J. et al., "Substrate Phage: Selection of Protease Substrates by Monovalent Phage Display," <u>Science</u> 260:1113-1117 (1993)
CL	McCafferty, J. et al., "Selection and Rapid Purification of Murine Antibody Fragments That Bind a Transition-State Analog by Phage Display," <u>Applied Biochem. Biotech.</u> 47:157-173 (1994)
CM	Medberry, S.L. et al., "Intra-chromosomal rearrangements generated by Cre-lox site-specific recombination," <u>Nucl. Acids Res.</u> 23(3):485-490 (1995)
CN	Meister, A. et al., "Biological Activities and Receptor Binding of Two Human Recombinant Interferons and their Hybrids," <u>J. Gen. Virol.</u> 67:1633-1643 (1986)
CO	Metcalf, W.W. et al., "Mutational Analysis of an <i>Escherichia coli</i> Fourteen-Gene Operon for Phosphonate Degradation, Using TnphoA' Elements," <u>J. Bacteriology</u> 175(11):3430-3442 (1993)
CP	Northrup, J.P. et al., "Characterization of the Nuclear and Cytoplasmic Components of the Lymphoid-specific a Nuclear Factor of Activated T Cells (NF-AT) Complex," <u>J. Biol. Chem.</u> 268(4):2917-2923 (1993)
CQ	Nürnberg, B. et al., "Receptors and G proteins as primary components of transmembrane signal transduction," <u>J. Mol. Med.</u> 73:123-132 (1995)
CR	Ohnishi, H. et al., "Prolongation of Serum Half-Life of Interleukin 2 and Augmentation of Lymphokine-activated Killer Cell Activity by Pepstatin in Mice," <u>Canc. Res.</u> 50:1107-1112 (1990)
CS	O'Neil, K.T. et al., "Phage display: protein engineering by directed evolution," <u>Curr. Op. Struct. Biol.</u> 5:443-449 (1995)
CT	Ortaldo, J.R. et al., "A species of human α interferon that lacks the ability to boost human natural killer activity," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 81:4926-4929 (1984)
CU	Overall, M.L. et al., "Different Interactions of Interferon- α Subtypes at the Surface of Epithelial and Lymphoid Cells," <u>J. Interferon Res.</u> 12:281-288 (1992)
CV	Ozes, O.N. et al., "A Comparison of Interferon-Con1 with Natural Recombinant Interferons- α : Antiviral, Antiproliferative, and Natural Killer-Inducing Activities," <u>J. Interferon Res.</u> 12:55-59 (1992)
CW	Panka, D.J. et al., "Variable region framework differences result in decreased or increased affinity of variant anti-digoxin antibodies," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 85:3080-3084 (1988)
CX	Papas, T.S. et al., "Nucleotide Sequence and Organization of the Transforming Region and Large Terminal Redundancies (LTR) of Avian Myeloblastosis (AMV)," <u>J. Cell. Biochem.</u> 20:95-103 (1982)
CY	Parker, L.T. et al., "Peak Height Variations in Automated Sequencing of PCR Products Using Tag Dye-Terminator Chemistry," <u>BioTechniques</u> 19(1):116-121 (1995)
CZ	Patten, P.A. et al., "The Immunological Evolution of Catalysis," <u>Science</u> 271:1086-1091 (1996)

FORM PTO-1449 (Modified)		Attorney Docket No. 18097-020500	Serial No.: 08/769,062 <i>unassigned</i>
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant: PHILLIP A. PATTEN et al. <i>unassigned</i>	
		Filing Date: 12/10/96	Group: Unknown
DA	Pérez-Pérez, J. et al., "Increasing the Efficiency of Protein Export in <i>Escherichia coli</i> ," <i>Biotechnology</i> 12:178-180 (1994)		
DB	Pérez-Pérez, J. et al., "DNAK/DNAJ Supplementation Improves the Periplasmic Production of Human Granulocyte-Colony Stimulating Factor in <i>Escherichia coli</i> ," <i>Biochem. Biophys. Res. Commun.</i> 210(2):524-529 (1995)		
DC	Post, G.R. et al., "G protein-coupled receptors and signaling pathways regulating growth responses," <i>FASEB J.</i> 10:741-749 (1996)		
DD	Price, L.A. et al., "Functional Coupling of a Mammalian Somatostatin Receptor to the Yeast Pheromone Response Pathway," <i>Mol. Cell Biol.</i> 15(11):6188-6195 (1995)		
DE	Pugsley, A.P., "The Complete General Secretory Pathway in Gram-Negative Bacteria," <i>Microbiol. Rev.</i> 57(1):50-108 (1993)		
DF	Ranu, R.S., "DNA Sequencing with Δ Taq [®] DNA Polymerase," <i>BioTechniques</i> 18(3):390-395 (1995)		
DG	Raport, C.J. et al., "The orphan G-protein-coupled receptor-encoding gene V28 is closely related to genes for chemokine receptors and is expressed in lymphoid and neural tissues," <i>Gene</i> 163:295-299 (1995)		
DH	Rashtchian, A., "Novel methods for cloning and engineering genes using the polymerase chain reaction," <i>Current Op Biotech.</i> 6:30-36 (1995)		
DI	Reisine, T. et al., "Molecular Mechanisms of Opiate Receptor Coupling to G Proteins and Effector Systems," <i>Annals N.Y. Acad. Sci.</i> 780:168-175 (1996)		
DJ	Rohlmann, A. et al., "Sustained somatic gene inactivation by viral transfer of Cre recombinase," <i>Nature Biotechnology</i> 14:1562-1565 (1996)		
DK	Rosenberg, A.H. et al., "Effects of Consecutive AGG Codons on Translation in <i>Escherichia coli</i> , Demonstrated with a Versatile Codon Test System," <i>J. Bacteriology</i> 175(3):716-722 (1993)		
DL	Saggio, I. et al., "Functional phage display of ciliary neurotrophic factor," <i>Gene</i> 152:35-39 (1995)		
DM	Sandkvist, M. et al., "Secretion of recombinant proteins by Gram-negative bacteria," <i>Current Op. Biotech.</i> 7:505-511 (1996)		
DN	Sauer, B. et al., "Site-specific DNA recombination in mammalian cells by the Cre recombinase of bacteriophage P1," <i>Proc. Natl. Acad. Sci. U.S.A.</i> 85:5166-5170 (1988)		
DO	Schatz, P.J. et al., "Genetic Analysis of Protein Export in <i>Escherichia coli</i> ," <i>Ann. Rev. Genet.</i> 24:215-248 (1990)		
DP	Scheidl, T.M. et al., "Automated Fluorescent Dye-Terminator Sequencing of G+C-Rich Tracts with the Aid of Dimethyl Sulfoxide," <i>Biotechniques</i> 19:691-694 (1995)		
DQ	Seed, B. et al., "Molecular cloning of the CD2 antigen, the T-cell erythrocyte receptor, by a rapid immunoselection procedure," <i>Proc. Natl. Acad. Sci. U.S.A.</i> 84:3365-3369 (1987)		
DR	Seed, B., "Developments in expression cloning," <i>Current Op. Biotech.</i> 6:567-573 (1995)		
DS	Seto, D. et al., "DMSO resolves certain compressions and signal dropouts in fluorescent dye labeled primer-based DNA sequencing reactions," <i>DNA Sequence</i> 5:131-140 (1995)		
DT	Shenker, A., "G Protein-coupled receptor structure and function: the impact of disease-causing mutations," <i>Baillieres Clin. Endo. Metab.</i> 9(3):427-451 (1995)		

FORM PTO-1449 (Modified)

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT (Use several sheets if necessary)Attorney Docket No.: 18097-102-0225226 Application No.: 08/621,859
unassigned
Filing Date: March 25, 1996 Group: 1634

Page 1

Reference Designation

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub-class	Filing Date (If Approp.):
AA	5,824,485	10/20/98	Thompson et al.			
AB	5,783,431	7/21/98	Peterson et al.			
AC	5,629,179	5/13/97	Mierendorf et al.			

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub-class	Translate (Yes/No)
AD	WO 98/42832	10/1/98	PCT			
AE	WO 98/41653	9/24/98	PCT			
AF	WO 98/41623	9/24/98	PCT			
AG	WO 98/41622	9/24/98	PCT			
AH	WO 98/28416	7/2/98	PCT			
AI	WO 98/01581	1/15/98	PCT			
AJ	WO 97/35966	10/2/97	PCT			
AK	WO 97/25410	7/17/97	PCT			
AL	WO 97/20078	6/5/97	PCT			

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

AM	Fisch et al., "A Strategy Of Exon Shuffling For Making Large Peptide Repertoires Displayed On Filamentous Bacteriophage", <u>Proc Natl Acad Sci USA</u> , 93(15):7761-7766 (1996)
AN	Marton et al., "DNA Nicking Favors PCR Recombination", <u>Nucleic Acids Res.</u> , 19(9):2423-2426 (1991)
AO	Winter et al., "Making Antibodies By Phage Display Technology", <u>Ann. Rev. Immunol.</u> , 12:433-455 (1994)
AP	Greener et al., "An Efficient Random Mutagenesis Technique Using An <i>E. coli</i> Mutator Strain", <u>Methods in Molecular Biology</u> , 57:375-385 (1995)

EXAMINER

DATE CONSIDERED

12/11/07

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PA 183705 v1

COPY FROM PARENT

FORM PTO-1449 (Modified)

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT (Use several sheets if necessary)Attorney Docket No.: 1809702-02052005 Application No.: 08/621,855 •
Applicant: Sternmer et al. *chassignel*
Filing Date: March 25, 1996 Group: 1634

Reference Designation

U.S. PATENT DOCUMENTS

Page: 1

Examiner Initial	Document No.	Date	Name	Class	Sub-class	Filing Date (If Appropriate)

FOREIGN PATENT DOCUMENTS

AA	Document No.	Date	Country	Class	Sub-class	Translate (Yes/No)
	WO 95/17413	6/29/95	PCT			

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER *AA*DATE CONSIDERED *12/11/83*

U.S. PTO
J1050 09/95 1692
09/12/01



EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

COPY FROM PARENT

Substitute for form 1449A-B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	08/789,082- <i>unassigned</i>
		Filing Date	December 18, 1996 <i>unassigned</i>
		First Named Inventor	Phillip A. Patten
		Group Art Unit	1634
		Examiner Name	Zitomer, S.
		Attorney Docket Number	02-020500US-02-020522US

COPY FROM PARENT
(use as many sheets as necessary)

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS		
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
<i>lw</i>		JONES, ET AL., DNA Mutagenesis and Recombination. Nature. April 19, 1990, pages 793-794, Vol. 344,
		PRODROMOU et al., PROTOCOL: Recursive PCR: a novel technique for total gene synthesis, Protein Engineering, 1992, pages 827-829, Vol. 5, No. 8. Oxford University Press,
		BENDIXEN, et al. A Yeast Mating-Selection Scheme for Detection of Protein-Protein Interactions. Nucleic Acids Research, 1994, pages 1778-1779, Vol. 22, No. 9,
<i>lw</i>		MANDECKI, et al, FokI method of gene synthesis (Recombinant DNA; oligodeoxyribonucleotide; bridge mutagenesis; cloning; gene assembly; HIV) Gene. 1988. Pages 101-107, Vol. 68, Elsevier Science Publishers
<i>lw</i>		REISKOFSKI et al., Polymerase Chain Reaction (PCR) Techniques for Site-Directed Mutagenesis. Biotech. Adv. 1992, pages 535-547, Vol. 10, Pergamon Press, Ltd, Great Britain

Examiner Signature	<i>lw</i>	Date Considered	<i>12/11/07</i>
--------------------	-----------	-----------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

COPY FROM PARENT

Approved

100-1010, 100-1010, 100-1010
,rough 10/31/99. OMB 0651-0031

Substitute for form 1449A-B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

COPY FROM PARENT
(use as many sheets as necessary)

Complete if Known

08/769,062 unassigned
December 18, 1996 unassigned
Phillip A. Patten
1634
Zitomer, S.
02-020522 US

U.S. PATENT DOCUMENTS



FOREIGN PATENT DOCUMENTS

**Examiner
Signature**

Date Considered

12/11/07

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT
(Use several sheets if necessary)

Applicant: PHILLIP A. PATTEN et al.

Filing Date: 12/18/96

Group: Unknown

unassigned

Reference Designation

U. S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub-class	Filing Date (If Appropriate)
AA	5,525,486	06/11/96	Honjo et al.	C12N	15/00	10/09/95 692
AB	5,565,332	10/15/96	Hoogenboom et al.	435	69.1	10/09/95 692
AC						10/09/95 692

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub-class	Translation (yes/no)
AD						
AE	-					

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

AF	Cadwell et al., "RANDOMIZATION OF GENE BY PCR MUTAGENESIS" Research, PCR Methods and Applications, pp. 28-33 (1992)
AG	Crameri et al., "CONSTRUCTION AND EVOLUTION OF ANTIBODY-PHAGE LIBRARIES BY DNA SHUFFLING" Nature Medicine 2(1):100-102 (1996)
AH	Mandecki et al., "FOKI METHOD OF GENE SYNTHESIS (RECOMBINANT DNA; OLIGODEOXYRIBONUCLEOTIDE; BRIDGE MUTAGENESIS; CLONING; GENE ASSEMBLY; HIV) Gene 68:101-107 (1988)
AI	Matthews et al., "SUBSTRATE PHAGE: SELECTION OF PROTEASE SUBSTRATES BY MONOVALENT PHAGE DISPLAY" Science 260:1113-1117 (1993)
AJ	O'Neil et al., "PHAGE DISPLAY: PROTEIN ENGINEERING BY DIRECTED EVOLUTION" Current Opinion in Structural Biology 5:443-449 (1995)
AK	Reikofski et al., "POLYMERASE CHAIN REACTION (PCR) TECHNIQUES FOR SITE-DIRECTED MUTAGENESIS" BIOTECH. aDV. 10:535-547 (1992)
AL	Seed et al., "MOLECULAR CLONING OF THE CD2 ANTIGEN, THE T-CELL ERYTHROCYTE RECEPTOR, BY A RAPID IMMUNOSELECTION PROCEDURE" Proc. Natl. Acad. Sci USA 84:3365-3369 (1987)
AM	Sweasy et al., "DETECTION AND CHARACTERIZATION OF MAMMALIAN DNA POLYMERASE β MUTANTS BY FUNCTIONAL COMPLEMENTATION IN ESCHERICHIA COLI" Proc. Natl. Acad. Sci. USA 90:4626-4630 (1993)

XAMINER

DATE CONSIDERED

12/11/07

MINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449A-B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	09/717419 <i>Unassigned</i>
COPY FROM PARENT (use as many sheets as necessary)		Filing Date	November 18, 2000 <i>Unassigned</i>
		First Named Inventor	Phillip A. Patterson
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
		Attorney Docket Number	92-020520US 02-020522US

<i>h</i>	AP	HIGUCHI et al., (1988) "A general method of <i>in vitro</i> preparation and specific mutagenesis of DNA fragments: study of protein and DNA interactions." <i>Nucleic Acids Research</i> 16(15): 7351-7367.
	AQ	SHI et al., (1993) "Rapid PCR Construction of a Gene Containing Lym-1 Antibody Variable Regions." <i>PCR Methods and Applications</i> 3: 46-53.
	AR	SHULDINER, A.R. et al., (1989) "Hybrid DNA artifact from PCR of closely related target sequences," <i>Nuc. Acids Res.</i> 17(11): 4409.
	AS	SANDHU, G.S. et al., (1992) "Dual Asymmetric PCR: One-Step Construction of Synthetic Genes," <i>Biotechniques</i> 12(01): 14-16.
	AT	Biotransformations, Pathogenesis, and Evolving Biotechnology, Program and Abstracts, <i>Pseudomonas '89</i> , American Society for Microbiology and The University of Illinois, July 9-13, 1989, Abstract Nos. 11-21 – 11-25, p. 26.
	AU	SMITH et al. (1991) "Localized sex in bacteria," <i>Nature</i> , 349: 29-31.
	AV	MICHAEL et al., (c. 1997) "Thermostable Ligase-Mediated Incorporation of Mutagenic Oligonucleotides During PCR Amplifications," <i>Methods in Molecular Biology</i> , Vol. 67, PCR Cloning Protocols: From Molecular Cloning to Genetic Engineering pp. 189-195.
	AW	NER et al. (1988) "Laboratory Methods: A Simple and Efficient Procedure for Generating Random Point Mutations and for Codon Replacements Using Mixed Oligodeoxynucleotides," <i>DNA</i> 7: 127-134.
	AX	MERYHANS et al., (1990) "DNA recombination during PCR," <i>Nuc. Acids Res.</i> 18(7): 1687-1691.
	AY	WEBBER et al. (1983) "Formation of gene coding for hybrid proteins by recombination between related cloned genes in <i>E. coli</i> ." <i>Nuc. Acids Res.</i> 11(16): 5661-5669.
	AZ	POMPON et al. (1989) "Protein engineering by cDNA recombination in yeasts, shuffling of mammalian cytochrome P-450 functions." <i>Gene</i> 83: 15-24.
	BA	HORTON et al. (1990) "Gene splicing by overlap extension: Tailor-made genes using the polymerase chain reaction." <i>Biotechniques</i> 8(5): 528-535.
	BB	KLUG et al. (1991) "Creating chimeric molecules by PCR directed homologous DNA recombination." <i>Nuc. Acids Res.</i> 19(10): 2793.
<i>V</i>	BC	ROUWENDAL et al., (1993) "Simultaneous Mutagenesis of Multiple Sites: Application of the Oligo Chain Reaction Using PCR Products instead of Oligonucleotides." <i>Biotechniques</i> 15(1): 68-70, 72-74, 76.

Examiner Signature	<i>h</i>	Date Considered	<i>12/11/03</i>
--------------------	----------	-----------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Attorney Docket
010097-014612US

Serial No.:

08/621,859 Unassigned

02-000522US

Applicant: Stemmer and Crameri

Filing Date: Unassigned
March 25, 1996Group:
1807S. 4692
U.S. 12/05/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

509/12/97

FORM PTO-1449 (Modified)

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT
(Use several sheets if necessary)

Attorney Docket

018097-01461203

Serial No.:

08/621,859

0025225

unassigned

Applicant: Stemmer and Cramer

Filing Date:

March 25, 1998

Group:

1807

Reference Designation

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub-class	Filing Date (If Appropriate)
AA	4,994,368	02/19/91	Goodman et al.			
AB	5,043,272	08/27/91	Hartley			COPY FROM PARENT
AC	5,093,257	03/03/92	Gray			
AD	5,223,408	06/29/93	Goeddel et al.			
AE	5,279,952	01/18/94	Wu			
AF	5,360,728	12/01/94	Prasher			
AG	5,521,077	05/28/96	Khosla et al			
AH	5,541,309	07/30/96	Prasher			
AI	5,605,793	02/25/97	Stemmer			
AJ	5,652,116	07/29/97	Grandi et al.			

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub-class	Translation (Yes/No)
AK	EP 252666 B1	01/13/88	Europe			
AL	WO 90/07576	07/12/90	PCT			
AM	WO 91/01087	02/07/91	PCT			
AN	WO 95/17413	06/29/95	PCT			
AO	WO 97/07205	02/27/97	PCT			

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

AP	Arkin et al., "An algorithm for protein engineering: Stimulation of recursive ensemble mutagenesis" <i>Proc. Natl. Acad. Sci. USA</i> 89:7811-7815 (1992).
AQ	Beaudry et al., "Directed evolution of an RNA enzyme" <i>Science</i> 257:635-641 (1992).
AR	Berger et al. "Phoenix mutagenesis: One-step reassembly of multiply cleaved plasmids with mixtures of mutant and wild-type fragments" <i>Anal. Biochem.</i> 214:571-579 (1993).

EXAMINER: *Mr.*DATE CONSIDERED: *12/11/03*

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 (Modified)		Attorney Docket 018097-014612US	Serial No.: 08/621,859 UNASSIGNED
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		02/025 2205 Applicant: Stemmer and Crameri	
		Filing Date: UNCLASSIFIED March 25, 1996	Group: 1807
Reference Designations (Including Author, Title, Date, Pertinent Pages, Etc.)			
Examiner Initial			
AAF	Marks et al. "By-passing immunization: Building high affinity human antibodies by chain shuffling" <u>Bio/Technology</u> 10:779-782 (1992).		
AAG	Meyerhans et al. "DNA recombination using PCR" <u>Nucleic Acids Res.</u> 18:1687-1691 (1990).		
AAH	Oliphant et al. "Cloning of random-sequence oligodeoxynucleotides" <u>Gene</u> 44:177-183 (1988).		
AAI	Pharmacia Catalog pp. 70-71 (1993 Edition).		
AAJ	Pompon et al. "Protein engineering by cDNA recombination in yeasts: Shuffling of mammalian cytochrome P-450 functions" <u>Gene</u> 83:15-24 (1989).		
AAK	Reidhaar-Olson et al. "Combinatorial cassette mutagenesis as a probe of the informational content of protein sequences" <u>Science</u> 241:53-57 (1988).		
AAL	Rao et al. "Recombination and polymerase error facilitate restoration of infectivity in brome mosaic virus" <u>J. Virol.</u> 67:969-979 (1993).		
AAM	Stemmer et al. "Selection of an active single chain Fv antibody from a protein linker library prepared by enzymatic inverse PCR" <u>BioTechniques</u> 14:256-265 (1992).		
AAN	Stemmer et al. "Rapid evolution of a protein in vitro by DNA shuffling" <u>Nature</u> 370:389-391 (1994). (previously submitted)		
AAO	Stemmer et al. "DNA shuffling by random fragmentation and reassembly: In vitro recombination for molecular evolution" <u>Proc. Natl. Acad. Sci. USA</u> 91:10747-10751 (1994). (previously submitted)		
EXAMINER	DATE CONSIDERED	12/11/63	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

COPY FROM PARENT

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT
(Use several sheets if necessary)

OL-020522US

Applicant: PHILLIP A. PATTEN et al.

UNASSIGNED

Filing Date: 12/18/96

Group: Unknown

DU	Siderovski, D.P. et al., "A new family of regulators of G-protein-coupled receptors?" <u>Current Biology</u> 6 (2):211-212 (1996)
DV	Simonen, M. et al., "Protein Secretion in <i>Bacillus</i> Species," <u>Microbiol. Rev.</u> 57(1):109-137 (1993)
DW	Skatrud, P.L. et al., "Genetic engineering of β -lactam antibiotic biosynthetic pathways in filamentous fungi," <u>TIBTECH</u> 10:324-329 (1992)
DX	Skerra, A. et al., "Filter Screening of Antibody Fab Fragments Secreted from Individual Bacterial Colonies: Specific Detection of Antigen Binding with a Two-Membrane System," <u>Anal. Biochem.</u> 196:151-155 (1991)
DY	Smirnov, Y.V. et al., "Synthesis in <i>Escherichia coli</i> and a Rapid Method of Isolating High-Activity Recombinant His ₆ DNA Polymerase from <i>Thermus aquaticus</i> ," <u>Russian J. Bioorganic Chem.</u> 21(5):341-342 (1995)
DZ	Smith, L.M., "Sequence from spectrometry: A realistic prospect," <u>Nature Biotechnology</u> 14:1084-1087 (1996)
EA	Smith, R.A.G. et al., "Chemical derivatization of therapeutic proteins," <u>TIBTECH</u> 11:397-403 (1993)
EB	Solar, I. et al., "Linker modification introduces useful molecular instability in a single chain antibody," <u>Protein Engineering</u> 8(7):717-723 (1995)
EC	Song, Z.H. et al., "Molecular Cloning and Chromosomal Localization of Human Genes Encoding Three Closely Related G Protein-Coupled Receptors," <u>Genomics</u> 28:347-349 (1995)
ED	Spiegel, A.M., "Defects in G Protein-Coupled Signal Transduction in Human Disease," <u>Ann. Rev. Physiol.</u> 56:143-170 (1995)
EF	Spiegel, A.M., "Genetic Bases of Endocrine Disease," <u>J. Clin. Endocrin. Metab.</u> 81(7):2434-2442 (1996)
EG	Stemmer, W.P.C., "Rapid evolution of a protein in vitro by DNA shuffling," <u>Nature</u> 370:389-391 (1994)
EH	Stemmer, W.P.C., "DNA shuffling by random fragmentation and reassembly: In vitro recombination for molecular evolution," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 91:10747-10751 (1994)
EI	Stemmer, W.P.C., "Searching Sequence Space, Using recombination to search more efficiently and thoroughly instead of making bigger combinatorial libraries," <u>Biotechnology</u> 13:549-553 (1995)
EJ	Stemmer, W.P.C. et al., "Single-step assembly of a gene and entire plasmid from large numbers of oligodeoxyribonucleotides," <u>Gene</u> 164:49-53 (1995)
EK	Stemmer, W.P.C., "The Evolution of Molecular Computation," <u>Science</u> 270:1510 (1995)
EL	Strader, C.D. et al., "The family of G-protein-coupled receptors," <u>FASEB J.</u> 9:745-754 (1995)
EM	Sweasy, J.B. et al., "Detection and characterization of mammalian DNA polymerase β mutants by functional complementation in <i>Escherichia coli</i> ," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 90:4626-4630 (1993)
EN	Sweasy, J.B. et al., "DNA Polymerase β Can Substitute for DNA Polymerase I in the Initiation of Plasmid DNA Replication," <u>J. Bacteriology</u> 177(10):2923-2925 (1995)

FORM PTO-1449 (Modified)		Attorney Docket No. 18097-020500	Serial No.: 08/769,062 unassigned
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant: PHILLIP A. PATTEN et al.	
		Filing Date: 12/18/96	Group: Unknown
EO	Su, S.S. et al., "Escherichia coli mutS-encoded protein binds to mismatched DNA base pairs," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 83:5057-5061 (1986)		
EP	Suzuki, M. et al., "Random mutagenesis of <i>Thermus aquaticus</i> DNA polymerase I: Concordance of immutable sites <i>in vivo</i> with the crystal structure," <u>Proc. Natl. Acad. Sci. U.S.A.</u> 93:9670-9675 (1996)		
EQ	Tabor S. et al., "DNA Sequence Analysis with a Modified Bacteriophage T7 DNA polymerase," <u>J. Biol. Chem.</u> 265(14):8322-8328 (1990)		
ER	Théze, J. et al., "Interleukin 2 and its receptors: recent advances and new immunological functions," <u>Immunol. Today</u> 17(10):481-486 (1996)		
ES	Turner, S.L. et al., "Use of Deoxyinosine in PCR to Improve Amplification of GC-Rich DNA," <u>Biotechniques</u> 19(1):48-52 (1995)		
ET	von der Osten, C. et al., "Protein engineering of subtilisins to improve stability in detergent formulations," <u>J. Biotech.</u> 28:55-68 (1993)		
EU	Wagner, R. et al., "Mutation detection using immobilized mismatch binding protein (MutS)," <u>Nucl. Acids Res.</u> 23(19):3944-3948 (1995)		
EV	Wall, J.G. et al., "Effects of overexpressing folding modulators on the <i>in vivo</i> folding of heterologous proteins in <i>Escherichia coli</i> ," <u>Current Op. Biotech.</u> 6:507-516 (1995)		
EW	Weck, P.K. et al., "Comparison of the Antiviral Activities of Various Cloned Human Interferon- α Subtypes in Mammalian Cell Cultures," <u>J. Gen. Virol.</u> 57:233-237 (1981)		
EX	Wettstein, D.A., "Expression of a Class II Major Histocompatibility Complex (MHC) Heterodimer in a Lipid-linked Form with Enhanced Peptide/Soluble MHC Complex Formation at Low pH," <u>J. Exp. Med.</u> 174:219-228 (1991)		
EY	Young, N.M. et al., "Thermal stabilization of a single-chain Fv antibody fragment by introduction of a disulphide bond," <u>FEBS Letts.</u> 377:135-139 (1995)		
EZ	Zhang, T. et al., "Circular Permutation of T4 Lysozyme," <u>Biochemistry</u> 32:12311-12318 (1993)		
FA	Zhao, X., "EPD, a novel technology for drug delivery," <u>Adv. Drug Deliv. Rev.</u> 17:257-262 (1995)		
FB			
EXAMINER	DATE CONSIDERED	12/11/02	

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Compt to if Known Application Number 09/954,692 Filing Date September 12, 2001 First Named Inventor Phillip A. Patten Group Art Unit Unassigned 09/954,692 Examiner Name Unassigned Attorney Docket Number 02-020522US	
--	--	--	--

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code (if known)			
SP	AA	5,498,531		Jarrell	09-10-1993	
	AB	5,501,962		Bradford-Goldberg et al.	03-26-1996	
	AC	5,538,868		Horn et al.	07-23-1996	
	AD	5,708,153		Dower et al.	01-13-1998	
	AE	5,837,500		Ladner et al.	11-17-1998	
	AF	6,180,406	B1	Stemmer	01-30-2001	
	AG	6,238,884	B1	Short et al.	05-29-2001	
	AH	6,280,926	B1	Short	08-28-2001	
	AI	6,287,861	B1	Stemmer et al.	09-11-2001	
	AJ	6,291,158	B1	Winter et al.	09-18-2001	
	AK	6,291,161	B1	Lerner et al.	09-18-2001	
	AL	6,291,242	B1	Stemmer	09-18-2001	
	AM	6,297,053	B1	Stemmer	10-02-2001	
	AN	6,303,344		Patten et al.	10-16-2001	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
SP	AO	AU	703,264		Stemmer et al.	03-25-1999		
	AP	AU	724,698		Arnold et al.	10-01-1998		
	AQ	AU	732,146		Patten et al.	06-25-1998		
	AR	EP	0 316 018	A2	Cetin Corp	05-17-1989		
	AS	EP	0 316 018	A3	Cetin Corp	05-17-1989		
	AT	EP	0 385 410	B1	Baylor College Medicine	01-25-1990		
	AU	EP	0 439 182	B1	Backman et al.	07-31-1991		
	AV	EP	0 596 918	B1	Birkenmeyer et al.	05-18-1994		
	AW	EP	0 633 944	B1	Bouma et al.	01-18-1995		

Examiner Signature	<i>Stemmer</i>	Date Considered	<i>6-23-03</i>
--------------------	----------------	-----------------	----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete if Known			
		Application Number	09/954,692		
		Filing Date	September 12, 2001		
		First Named Inventor	Phillip A. Patten		
		Group Art Unit	Unassigned		
		Examiner Name	Unassigned		
		Attorney Docket Number	02-020522US		

SC	AX	EP	0 876 509	B1	Maxygen, Inc.	11-11-1998	RECEIVED TECH CENTER 1600/900 FEB 6 2002
	AY	EP	0 911 396	A2	Maxygen, Inc.	04-28-1999	
	AZ	EP	0 911 396	A3	Maxygen, Inc.	04-28-1999	
	BA	EP	1 094 108	A2	Stemmer et al.	04-25-2001	
	BB	EP	1 094 108	A3	Stemmer et al.	04-25-2001	
	BC	EP	1 103 606	A2	Stemmer	12-02-1996	
	BD	EP	1 103 606	A3	Stemmer	12-02-1996	
	BE	JP	04 229 200		Backman et al.	08-18-1992	
	BF	WO	86/05803		Ballivet et al.	10-09-1986	
	BG	WO	90/00626	A1	Baylor College Medicine	01-25-1990	
	BH	WO	93/00447	A1	Birkenmeyer et al.	01-07-1993	
	BI	WO	93/20227	A1	Bouma et al.	10-14-1993	
	BJ	WO	93/24656	A1	Marshall et al.	12-09-1993	
	BK	WO	94/08047		Bouma et al.	04-14-1994	
	BL	WO	94/12632			06-09-1994	
	BM	WO	96/17056		Pasteur Institute	06-06-1996	
	BN	WO	97/07206		Okkels	02-27-1997	
	BO	WO	97/20918		Short	06-12-1997	
	BP	WO	97/35957		Stemmer	10-02-1997	
	BQ	WO	98/13485		Stemmer et al.	04-02-1998	
	BR	WO	98/13487		Stemmer et al.	04-02-1998	
	BS	WO	98/27230		Palten et al.	06-25-1998	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
SC	BT	Armon et al. (1990) "Assembly of the 26 S complex that degrades proteins ligated to ubiquitin is accompanied by the formation of ATPase activity." <i>J. Biol Chem</i> 265(34):20723-20726	
	BU	Arnold (1998) "When blind is better: protein designed by evolution." <i>Nat Biotechnology</i> 16(7):617-618	

Examiner Signature	S. Reformer	Date Considered	6-23-03
--------------------	-------------	-----------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete if Known	TECH JUN 16 2002	RECEIVED																																																			
		Application Number Filing Date First Named Inventor Group Art Unit Examiner Name Attorney Docket Number	09/954,692 September 12, 2001 Phillip A. Patten Unassigned Unassigned 02-020522US	TECH JUN 16 2002																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; vertical-align: top; padding: 5px;">SC</td> <td style="width: 10%; vertical-align: top; padding: 5px;">BV</td> <td style="width: 80%; vertical-align: top; padding: 5px;">Arnold et al. (1997) "Optimizing industrial enzymes by directed evolution." <i>Adv. Biochem Eng. Biotechnol.</i> 58:1-14</td> </tr> <tr> <td></td> <td>BW</td> <td>Bale et al. (1984) "Kinetics of formation of fibrin oligomers III Ligation kinetics concurrent with and subsequent to oligomer assembly." <i>Biopolymers</i> 23(1):127-138</td> </tr> <tr> <td></td> <td>BX</td> <td>Barany (1991) "The ligase chain reaction in a PCR world." <i>PCR Methods Appl.</i> 1(1):5-18</td> </tr> <tr> <td></td> <td>BY</td> <td>Bolli et al (1997) "Pyranosyl-RNA: chiroselective self-assembly of base sequences by ligative oligomerization of tetranucleotide-2', 3'-cyclophosphates (with a commentary concerning the origin of biomolecular homochirality)." <i>Chem Biol</i> 4(4):309-320</td> </tr> <tr> <td></td> <td>BZ</td> <td>Crameri et al. (1993) "Display of biologically active proteins on the surface of filamentous phages: a cDNA cloning system for selection of functional gene products linked to the genetic information responsible for their production." <i>Gene</i> 137(1):69-75</td> </tr> <tr> <td></td> <td>CA</td> <td>Daughtery et al. (1994) "Bohr effect of the partially-ligated (CN-met) intermediates of hemoglobin as probed by quaternary assembly." <i>Biochemistry</i> 33(34):10345-10357</td> </tr> <tr> <td></td> <td>CB</td> <td>Doyle et al. (1992) "cooperative oxygen binding, subunit assembly, and sulfhydryl reaction kinetics of the eight cyanomet intermediate ligation states of human hemoglobin." <i>Biochemistry</i> 31(45):11182-11195</td> </tr> <tr> <td></td> <td>CC</td> <td>Gaskin et al. (1997) "Directed evolution of a industrially important enzyme." <i>Biochem Soc Trans</i> 25(1):155</td> </tr> <tr> <td></td> <td>CD</td> <td>Gilbert et al. (1997) "Origion of genes." <i>PNAS UDS</i> 94(15):7698-7703</td> </tr> <tr> <td></td> <td>CE</td> <td>Giver et al. (1998) "Combinatorial protein design by in <i>lvtro</i> recombination." <i>Curr Opin Chem Biol.</i> 2(3):335-338</td> </tr> <tr> <td></td> <td>CF</td> <td>Giver et al. (1998) "Directed evolution if a thermostable esterase." <i>PNAS USA</i> 95(22):12809-12813</td> </tr> <tr> <td></td> <td>CG</td> <td>Graf et al. (1996) <i>PNAS USA</i> 11591-11596</td> </tr> <tr> <td></td> <td>CH</td> <td>Hurst et al. (1996) "A difficult phase for introns-early Molecular evolution." <i>Curr Biol</i> 6(5):533-536</td> </tr> <tr> <td></td> <td>CI</td> <td>Kaczorowski et al. (1994) "Assembly of 18-nucleotide primeters by ligation of three hexamers: sequencing of large genomes by primer walking." <i>Analytical Biochemistry</i> 221(1):127-135</td> </tr> <tr> <td></td> <td>CJ</td> <td>Kaczorowski et al. (1996) "Automated four-color DNA sequencing using primers assembled by hexameter ligation." <i>Gene</i> 179(1):195-198</td> </tr> <tr> <td></td> <td>CK</td> <td>Kalin et al. (1992) "Evaluation of the ligase chain reaction (LCR) for the detection of point mutations." <i>Mutant Res</i> 283(2):119-123</td> </tr> <tr> <td></td> <td>CL</td> <td>Kato et al. (1996) "Construction of mini-F plasmid vectors for plasmid shuffling in <i>Escherichia coli</i>." <i>Gene</i> 170(1):141-142</td> </tr> </table>					SC	BV	Arnold et al. (1997) "Optimizing industrial enzymes by directed evolution." <i>Adv. Biochem Eng. Biotechnol.</i> 58:1-14		BW	Bale et al. (1984) "Kinetics of formation of fibrin oligomers III Ligation kinetics concurrent with and subsequent to oligomer assembly." <i>Biopolymers</i> 23(1):127-138		BX	Barany (1991) "The ligase chain reaction in a PCR world." <i>PCR Methods Appl.</i> 1(1):5-18		BY	Bolli et al (1997) "Pyranosyl-RNA: chiroselective self-assembly of base sequences by ligative oligomerization of tetranucleotide-2', 3'-cyclophosphates (with a commentary concerning the origin of biomolecular homochirality)." <i>Chem Biol</i> 4(4):309-320		BZ	Crameri et al. (1993) "Display of biologically active proteins on the surface of filamentous phages: a cDNA cloning system for selection of functional gene products linked to the genetic information responsible for their production." <i>Gene</i> 137(1):69-75		CA	Daughtery et al. (1994) "Bohr effect of the partially-ligated (CN-met) intermediates of hemoglobin as probed by quaternary assembly." <i>Biochemistry</i> 33(34):10345-10357		CB	Doyle et al. (1992) "cooperative oxygen binding, subunit assembly, and sulfhydryl reaction kinetics of the eight cyanomet intermediate ligation states of human hemoglobin." <i>Biochemistry</i> 31(45):11182-11195		CC	Gaskin et al. (1997) "Directed evolution of a industrially important enzyme." <i>Biochem Soc Trans</i> 25(1):155		CD	Gilbert et al. (1997) "Origion of genes." <i>PNAS UDS</i> 94(15):7698-7703		CE	Giver et al. (1998) "Combinatorial protein design by in <i>lvtro</i> recombination." <i>Curr Opin Chem Biol.</i> 2(3):335-338		CF	Giver et al. (1998) "Directed evolution if a thermostable esterase." <i>PNAS USA</i> 95(22):12809-12813		CG	Graf et al. (1996) <i>PNAS USA</i> 11591-11596		CH	Hurst et al. (1996) "A difficult phase for introns-early Molecular evolution." <i>Curr Biol</i> 6(5):533-536		CI	Kaczorowski et al. (1994) "Assembly of 18-nucleotide primeters by ligation of three hexamers: sequencing of large genomes by primer walking." <i>Analytical Biochemistry</i> 221(1):127-135		CJ	Kaczorowski et al. (1996) "Automated four-color DNA sequencing using primers assembled by hexameter ligation." <i>Gene</i> 179(1):195-198		CK	Kalin et al. (1992) "Evaluation of the ligase chain reaction (LCR) for the detection of point mutations." <i>Mutant Res</i> 283(2):119-123		CL	Kato et al. (1996) "Construction of mini-F plasmid vectors for plasmid shuffling in <i>Escherichia coli</i> ." <i>Gene</i> 170(1):141-142
SC	BV	Arnold et al. (1997) "Optimizing industrial enzymes by directed evolution." <i>Adv. Biochem Eng. Biotechnol.</i> 58:1-14																																																					
	BW	Bale et al. (1984) "Kinetics of formation of fibrin oligomers III Ligation kinetics concurrent with and subsequent to oligomer assembly." <i>Biopolymers</i> 23(1):127-138																																																					
	BX	Barany (1991) "The ligase chain reaction in a PCR world." <i>PCR Methods Appl.</i> 1(1):5-18																																																					
	BY	Bolli et al (1997) "Pyranosyl-RNA: chiroselective self-assembly of base sequences by ligative oligomerization of tetranucleotide-2', 3'-cyclophosphates (with a commentary concerning the origin of biomolecular homochirality)." <i>Chem Biol</i> 4(4):309-320																																																					
	BZ	Crameri et al. (1993) "Display of biologically active proteins on the surface of filamentous phages: a cDNA cloning system for selection of functional gene products linked to the genetic information responsible for their production." <i>Gene</i> 137(1):69-75																																																					
	CA	Daughtery et al. (1994) "Bohr effect of the partially-ligated (CN-met) intermediates of hemoglobin as probed by quaternary assembly." <i>Biochemistry</i> 33(34):10345-10357																																																					
	CB	Doyle et al. (1992) "cooperative oxygen binding, subunit assembly, and sulfhydryl reaction kinetics of the eight cyanomet intermediate ligation states of human hemoglobin." <i>Biochemistry</i> 31(45):11182-11195																																																					
	CC	Gaskin et al. (1997) "Directed evolution of a industrially important enzyme." <i>Biochem Soc Trans</i> 25(1):155																																																					
	CD	Gilbert et al. (1997) "Origion of genes." <i>PNAS UDS</i> 94(15):7698-7703																																																					
	CE	Giver et al. (1998) "Combinatorial protein design by in <i>lvtro</i> recombination." <i>Curr Opin Chem Biol.</i> 2(3):335-338																																																					
	CF	Giver et al. (1998) "Directed evolution if a thermostable esterase." <i>PNAS USA</i> 95(22):12809-12813																																																					
	CG	Graf et al. (1996) <i>PNAS USA</i> 11591-11596																																																					
	CH	Hurst et al. (1996) "A difficult phase for introns-early Molecular evolution." <i>Curr Biol</i> 6(5):533-536																																																					
	CI	Kaczorowski et al. (1994) "Assembly of 18-nucleotide primeters by ligation of three hexamers: sequencing of large genomes by primer walking." <i>Analytical Biochemistry</i> 221(1):127-135																																																					
	CJ	Kaczorowski et al. (1996) "Automated four-color DNA sequencing using primers assembled by hexameter ligation." <i>Gene</i> 179(1):195-198																																																					
	CK	Kalin et al. (1992) "Evaluation of the ligase chain reaction (LCR) for the detection of point mutations." <i>Mutant Res</i> 283(2):119-123																																																					
	CL	Kato et al. (1996) "Construction of mini-F plasmid vectors for plasmid shuffling in <i>Escherichia coli</i> ." <i>Gene</i> 170(1):141-142																																																					
Examiner Signature	D. Horner		Date Considered	6/23/08																																																			

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete if Known	
		Application Number	09/954,692
		Filing Date	September 12, 2001
		First Named Inventor	Phillip A. Patten
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
		Attorney Docket Number	02-020522US

SP	CM	Kikuchi et al. (2000) "An effective family shuffling method using single-stranded DNA." <i>Gene</i> 243:133-137
	CN	Kishchenko et al. (1997) "Shuffling of structural elements in filamentous bacteriophages." <i>Proteins</i> 27(3):405-409
	CO	Kuchner et al. (1997) "Directed evolution of enzyme catalyst." <i>Trends Biotechnol</i> 15(12):523-530
	CP	Laffler et al. (1993) "The ligase chain reaction in DNA-based diagnosis." <i>Ann Biol Clin</i> 51(9):821-826
	CQ	Lee (1996) "Ligase 5 chain reaction." <i>Biologicals</i> 24(3):197-199
	CR	Long et al. (1995) "Intron phase correlations and the evolution of the intron/exon structure of genes." <i>Proc Natl Acad Sci USA</i> 92(26):12495-12499
	CS	Matsumura et al. (1996) "DNA shuffling brightens prospects for GFP." <i>Nat Biotechnol</i> 14(3):366
	CT	Meijer et al. (1996) "Directed evolution of a type I antifreeze protein expressed in <i>Escherichia coli</i> with sodium chloride as selective pressure and its effect on antifreeze tolerance." <i>Protein Eng.</i> 9(11):1051-1054
	CU	Miller et al. (1997) "Expanding the 43C9 class of catalytic antibodies using a chain-shuffling approach." <i>Bioorg Med Chem.</i> 5(3):581-590
	CV	Moore et al. (1997) "Strategies for the in vitro evolution of protein function: enzyme evolution by random recombination of improved sequences." <i>J. Mol Biol.</i> 272(3):336-347
	CW	Moore et al. (1996) "Directed evolution of a para-nitrobenzyl esterase for aqueous-organic solvents." <i>Nature Biotechnol</i> 14(4):458-467
	CX	Muller-Dieckmann et al. (1995) "Substrate specificity and assembly of the catalytic center derived from two structures of ligated uridylate kinase." <i>J. Mol. Biol.</i> 246(4):522-530
	CT	Nakamura et al. (1996) "Two hydrophobic subunits are essential for the heine b ligation and functional assembly of complex II (succinate-ubiquinone oxidoreductase) from <i>Escherichia coli</i> ." <i>J. Biol Chem</i> 271(1):521-527
	CZ	Nardi et al. (1997) "Duplication of the prpF gene and shuffling of DNA fragments on the lactose plasmid of <i>Lactococcus lactis</i> ." <i>J. Bacteriol</i> 179(13):4184-4171
	DA	Nelson et al. (1996) "Base eversion and shuffling by DNA Methyltransferases." <i>Chem Biol</i> 3(6):419-423
	DB	Ohlin et al. (1996) "Light chain shuffling of a high affinity antibody results in a drift in epitope recognition." <i>Mol Immunol</i> 33(1):47-56
	DC	Patten et al. (1997) "Applications of DNA shuffling to pharmaceuticals and vaccines." <i>Curr Opin Biotechnol</i> 8(6):724-733

Examiner Signature	<i>C. Johnson</i>	Date Considered	6-23-03
--------------------	-------------------	-----------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complte if Known Application Number Filing Date First Named Inventor Group Art Unit Examiner Name Attorney Docket Number
		09/954,692 September 12, 2001 Phillip A. Patten Unassigned Unassigned 02-020522US

1	DD	Rouwendal et al. (1996) "Ligase chain reaction for site-directed in vitro mutagenesis." <i>Methods Mol Biol</i> 57:149-156
	DE	Shabarova et al. (1991) "Chemical ligation of DNA: the first non-enzymatic assembly of a biologically active gene." <i>Nucleic Acids Res.</i> 19(15):4247-4251
	DF	Shao et al. (1996) "Engineering new functions and altering existing functions." <i>Curr Opin. Struct Biol</i> 6(4):513-518
	DG	Shao et al. (1998) "Random-priming in vitro recombination: an effective tool for directed evolution." <i>Nucleic Acids Res.</i> 26(2):681-683
	DH	Shimmer et al. (1995) "Ligase chain reaction." <i>Methods Mol Biol</i> 46:269-278
	DI	Shuldner et al. (1990) "PCR-induced (ligase-free) subcloning: a rapid reliable method to subclone polymerase chain reaction (PCR) products." <i>Nucleic Acids Res.</i> 18(7):1920
	DJ	Strausberg et al. (1995) "directed evolution of a subtilisin with calcium-independent stability." <i>Biotechnology</i> 13(7):669-673
	DK	Szostak (1997) "In vitro selection and directed evolution." <i>Harvey Lect</i> 93:95-118
	DL	Tortoli et al. (1997) "Evaluation of a commercial ligase chain reaction kit (Abbott LCx) for directed detection of <i>Mycobacterium tuberculosis</i> in pulmonary and extrapulmonary specimens." <i>J. Clin. Microbiol.</i> 35(9):2424-2426
	DM	You et al. (1996) "Directed evolution of subtilisin E in <i>Bacillus subtilis</i> to enhance total activity in aqueous dimethylformamide." <i>Protein Eng.</i> 9(1):77-83
	DN	Youvan et al. <i>Nature</i> 401:410 (1992)
	DO	Zhao et al. (1996) "Strategy for the directed evolution of a peptide ligase." <i>Ann NY Acad Sci</i> 799:1-5
	DP	Zhao et al. (1997) "Functional and nonfunctional mutations distinguished by random recombination of homologous genes." <i>PNAS USA</i> 94(15):7997-8000
	DQ	Zhao et al. (1997) "Optimization of DNA shuffling for high fidelity recombination." <i>Nucleic Acids Res.</i> 25(6):1307-1308
	DR	STATEMENT OF GROUNDS AND PARTICULARS in the Matter of Australian Patent Application No. 732,146. October 12, 2001.
	DS	European Search Report for Application No. 97953571.3
	DT	European Search Report for Application No. 01202349.5
	DU	European Search Report for Application No. 01202350.3

Examiner Signature	S. Bomer	Date Considered	6-23-03
--------------------	----------	-----------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449A-B/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

COPY FROM PARENT
(use as many sheets as necessary)

Complete if Known

Application Number 08/769,062 Unassigned
Filing Date December 18, 1996 Unassigned
First Named Inventor Phillip A. Patten
Group Art Unit 1634
Examiner Name Zitomer, S.
Attorney Docket Number 02-020500US 02-020522 US

<i>h</i>	AU	WO	93/18141	Biogen, Inc.	09-16-1993
	AV	WO	93/25237	City of Hope	12-23-1993
	AW	WO	94/03596	Univ. of Hawaii	02-17-1994
	AX	WO	94/09817	City of Hope	05-11-1994
	AY	WO	94/13804	Cambridge Antibody Tech. Ltd. Medical Res. Council	06-23-1994

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T
	AZ	Delgrave et al., (1993) Bio/Technology 11:1548-1552	
	BA	Goldman, E.R. and Youvan D.C., (1992) Bio/Technology 10:1557-1561	
	BB	Joyce, G.F., (1992) Scientific American, December, 90-97	
	BC	Bock, L.C., et al., (1992) Nature 355:564-566	
	BD	Scott, J.K. and Smith G.P., (1990) Science 249:386-390	
	BE	Cwirla, S.E. et al., (1990) Proc Nat'l Acad Sci USA 87:6378-6382	
	BF	McCafferty, J. et al., (1990) Nature 348:552-554	
	BG	Cull, M.G. et al., (1992) Proc Natl Acad Sci USA 89:1865-1869	
	BH	Nissim et al., (1994) ENBO J 13:692-698	
	BI	Krishnan et al., (1991) Nucleic Acids Res. 19(22):6177-6182	
	BJ	Klug et al., (1991) Nucleic Acids Res. 19(10):2793	
	BK	Daugherty et al., (1991) Nucleic Acids Res. 19:2471-2476	
	BL	Yolov et al. (1990) Nucleic Acids Res. 18:3983-3986	
	BM	Jayaraman et al. (1991) Proc Natl Acad Sci USA 88:4084-4088	
	BN	Morl, M and Schmelzer, C. (1990) Nucleic Acids Res. 18(22):6545-6551	
	BO	Mullis et al., (1986) Cold Harbor Spring Symposia on Quantitative Biology 51:263-273	
	BP	Sikorski et al., (1991) Methods in Enzymology 194:302-318	
	BQ	Mullis et al., (1987) Methods in Enzymology 155:335-350	

Examiner Signature	<i>h</i>	Date Considered	<i>12/11/63</i>
--------------------	----------	-----------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

COPY FOR PARENT

(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

<p>Substitute for form 1449A-B/PTO</p> <p>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</p> <p>COPY FROM PARENT (Use as many sheets as necessary)</p>	<p>Complete if Known</p> <table border="0"> <tr> <td>Application Number</td> <td>08/769,062 <i>Unassigned</i></td> </tr> <tr> <td>Filing Date</td> <td>December 18, 1996 <i>Unassigned</i></td> </tr> <tr> <td>First Named Inventor</td> <td>Phillip A. Patten</td> </tr> <tr> <td>Group Art Unit</td> <td>1634</td> </tr> <tr> <td>Examiner Name</td> <td>Zitomer, S.</td> </tr> <tr> <td>Attorney Docket Number</td> <td>02-020500US-02-020522US</td> </tr> </table>	Application Number	08/769,062 <i>Unassigned</i>	Filing Date	December 18, 1996 <i>Unassigned</i>	First Named Inventor	Phillip A. Patten	Group Art Unit	1634	Examiner Name	Zitomer, S.	Attorney Docket Number	02-020500US-02-020522US
Application Number	08/769,062 <i>Unassigned</i>												
Filing Date	December 18, 1996 <i>Unassigned</i>												
First Named Inventor	Phillip A. Patten												
Group Art Unit	1634												
Examiner Name	Zitomer, S.												
Attorney Docket Number	02-020500US-02-020522US												

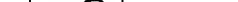
COPY FROM PARENT

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code (if known)			
	AA	4,683,202		Mullis	07-28-1987	
	AB	4,800,159		Mullis et al.	01-24-1989	
	AC	4,965,188		Mullis et al.	10-23-1990	
	AD	5,023,171		Ho	06-11-1991	
	AE	5,176,995		Sninsky et al.	01-05-1993	
	AF	5,187,083		Mullis	02-16-1993	
	AG	5,234,824		Mullis	08-10-1993	
	AH	5,502,167		Waldmann	03-26-1996	
	AI	5,556,772		Sorge et al.	09-17-1996	
	AJ	5,714,316		Weiner et al.	02-03-1998	
	AK	5,851,813		Desrosiers	12-22-1998	
	AL	5,858,725		Crowe et al.	01-12-1999	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
	AM	WO	90/14430		Scripps Clinic & Research Found.	11-29-1990		
	AN	WO	91/06570		Univ. of Melbourne	05-16-1991		
	AO	WO	92/07075		Wellcome Foundation Ltd.	04-30-1992		
	AP	WO	93/02191		Wellcome Foundation Ltd.	02-04-1993		
	AQ	WO	93/06213		MRC	04-01-1993		
	AR	WO	93/11237		Wellcome Foundation Ltd.	06-10-1993		
	AS	WO	93/15208		Genzyme Ltd.	08-05-1993		
	AT	WO	93/16192		Wellcome Foundation Ltd.	08-19-1993		

Examiner Signature  Date Considered 12/11/2023

Page 1 of 4

COPY FROM PARENT

(Modified) PTO/SB/08A-B (10-96)

Substitute for form 1449A-B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

COPY FROM PARENT

(use as many sheets as necessary)

Complete if Known

081760,062 unassigned
December 18, 1996 unassigned
Phillip A. Patten
1634
Zitomer, S.
02-020522US 02-020522US

U. S. PATENT DOCUMENTS



FOREIGN PATENT DOCUMENTS

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner
Signature

Date
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

COPY FROM SPAREN

(Modified) PTO/SB/08A-B (10-96)

Substitute for form 1449A-B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

COPY FROM PARENT

Complete if Known
Application Number 08769,882 Unassigned
Filing Date December 18, 1996 Unassigned
First Named Inventor Phillip A. Patten
Group Art Unit 1634
Examiner Name Zitomer, S.
Attorney Docket Number 02-020500US-02-020522US

U.S. PATENT DOCUMENTS

09/954692
01050 u.s.pto
09/12/01

FOREIGN PATENT DOCUMENTS

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner
Signature

Date
Considered

12/11/83

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

COPY FROM PARENT

(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

Substitute for form 1449A-B/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT
COPY FROM PARENT
(use as many sheets as necessary)

Complete if Known	
Application Number	08/769,062 - <i>Unassigned</i>
Filing Date	December 18, 1996 <i>Unassigned</i>
First Named Inventor	Phillip A. Patten
Group Art Unit	1634
Examiner Name	Zitomer, S.
Attorney Docket Number	02-020500US-02-020522US

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
<i>hu</i>	CV	5,958,672		Short	09-28-1999	
<i>hu</i>	CW	5,965,408		Short	10-12-1999	

01050 U.S. PTO
09/954692
09/12/01



FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T

Examiner Signature	<i>hu</i>	Date Considered	12/11/03
--------------------	-----------	-----------------	----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449A-B/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

COPY FROM PARENT
(use as many sheets as necessary)

Complete if Known	
Application Number	08/769,082 <i>unassigned</i>
Filing Date	December 18, 1996 <i>unassigned</i>
First Named Inventor	Phillip A. Patten
Group Art Unit	1634
Examiner Name	Zitomer, S.
Attorney Docket Number	02-020500US-02-020522US

BR	Scharf et al., (1986) Science 233:1076-1078
BS	Saiki et al., (1988) Science 239:487-491
BT	Saiki et al., (1986) Nature 324(13):163-166
BU	Saiki et al., (1985) Science 230:1350-1354
BV	Saiki et al., (1988) New Eng J Med 319(9):537-541
BW	Crameri et al., (1993) Nucleic Acids Res. 21(18):4410
BX	Villareal XC et al., (1991) Anal Biochem. 197(2):362-367
BY	Jones et al., (1991) Biotechniques 10(1):62-66
BZ	Weissenhorn et al., (1991) Gene 106(2):273-277
CA	Majumder et al., (1992) Gene 110(1):89-94
CB	Yao et al., (1992) PCR Methods Appl 1(3):205-207
CC	Atreya et al. (1992) Plant Mol Biol. 19(3):517-522
CD	Zoller et al., (1992) Curr Opin Biotechnol. 3(4):348-354
CE	Heda et al., (1992) Nucleic Acid Res. 20(19):5241-5242
CF	Horton et al., (1993) Methods Enzymol 217:270-279
CG	The whys and wheres of DNA amplification. Biotechnology (NY). 1993 Aug; 11(8):940-942
CH	Clackson et al., (1991) Nature 352(6336):624-628
CI	Smith et al., (1993) PCR Methods Appl. 2(3):253-257
CJ	Weisberg et al., (1993) Biotechniques 15(1):68-70, 72-4, 76.
CK	Marks, et al., (1991) J Mol Biol 222(3):581-597
CL	Harlow et al., (1994) Methods Mol Biol 31:87-96
CM	Yon et al., (1989) Nucleic Acids Res. 17(12):4895
CN	Ho et al., (1990) DNA & Prot. Engineer. Tech. 2:50-55
CO	Horton et al., (1990) Biotechniques 8(5):528-535
CP	Osuna et al. (1991) Gene 106:7-12
CQ	Dube et al. (1991) Biochemistry 30(51):11760-7
CR	Ghosh et al., (1991) Biochem 30:11767-74
CS	Paabo et al., (1990) J Biol Chem 265(8):4718-4721

Examiner Signature	<i>ch</i>	Date Considered	12/11/07
-----------------------	-----------	--------------------	----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449A-B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	-08769,062 <i>unassigned</i>
COPY FROM PARENT (use as many sheets as necessary)		Filing Date	December 18, 1996 <i>unassigned</i>
		First Named Inventor	Phillip A. Patten
		Group Art Unit	1634
		Examiner Name	Zitomer, S.
		Attorney Docket Number	02-020500US CR-020522US

<i>h</i>	CT	Sambrook et al., (1989) Molecular cloning, A Laboratory Manual, 2 nd Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York.
<i>1</i>	CU	Opposition by Diversa Corporation filed in the matter of Australian Application 703264 Affymax Technology NV, September 23, 1999.

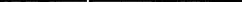
Examiner Signature	<i>h</i>	Date Considered	<i>12/11/03</i>
-----------------------	----------	--------------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<p>Substitute for form 1449A-B/PTO</p> <p>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</p> <p>COPY FROM PARENT <i>(use as many sheets as necessary)</i></p>	Complete if Known	
	Application Number	-097717419 <i>Unassigned</i>
	Filing Date	-November 18, 2000 <i>Unassigned</i>
	First Named Inventor	Philip A. Patten
	Group Art Unit	1634
	Examiner Name	S. Zitomer
Attorney Docket Number	-02-020520US-02-020522US	

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	U.S. Patent Document	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appeal
		Number			
AA	5,427,930		Birkenmeyer et al.	06-27-1995	
AB	5,792,607		Backman et al.	08-11-1998	

09/12/01
09/09/01
09/09/01
09/09/01
09/09/01

Examiner Signature  Date Considered 12/1/07

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

Substitute for form 1449A-B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	08769,062 09/954 692
COPY FROM PARENT (use as many sheets as necessary)		Filing Date	December 18, 1996 09/12/1991
		First Named Inventor	Phillip A. Patten
		Group Art Unit	1634
		Examiner Name	Zitomer, S.
		Attorney Docket Number	02-020500US 02-02052205

U.S. PATENT DOCUMENTS				
Examiner Initials	Cite No.	U.S. Patent Document Number	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
	AA	4,766,106	Katre et al.	08-23-1988
	AB	4,795,699	Tabor et al.	01-03-1989
	AC	4,816,567	Cabilly et al.	03-28-1989
	AD	4,902,502	Nitecki et al.	02-20-1990
	AE	5,264,563	Huse	11-23-1993
	AF	5,314,809	Erlich et al.	05-24-1994
	AG	5,512,463	Stemmer	04-30-1996
	AH	5,514,568	Stemmer	05-07-1996
	AI	5,514,588	Varadaraj	05-07-1996
	AJ	5,523,388	Huse	06-04-1996
	AK	5,541,311	Dahlberg et al.	07-30-1996
	AL	5,547,859	Goodman et al.	08-20-1996
	AM	5,574,205	Kucherlapati et al.	11-12-1996
	AN	5,667,974	Birkenmeyer et al.	09-16-1997
	AO	5,698,426	Huse	12-16-1997
	AP	5,758,316	Schellenberger	05-26-1998
	AQ	5,770,434	Huse	06-23-1998
	AR	5,808,022	Huse	09-15-1998
	AS	5,824,496	Horwitz et al.	10-20-1998
	AT	5,830,696	Short	11-03-1998
	AU	5,843,643	Ratner	12-01-1998
	AV	5,858,726	Crowe	01-12-1999
	AW	5,866,363	Pieczenic	02-02-1999
	AX	5,871,974	Huse	02-16-1999
	AY	5,877,402	Maliga et al.	03-02-1999
	AZ	5,885,813	Davis et al.	03-23-1999
	BA	5,928,905	Stemmer et al.	07-27-1999
Examiner Signature	<i>Examiner Signature</i>		Date Considered	12/11/03

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

Substitute for form 1449A-B/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	08/740,062 09/1854,672
COPY FROM PARENT		Filing Date	December 18, 1996 09/12/2001
(use as many sheets as necessary)		First Named Inventor	Phillip A. Patten
		Group Art Unit	1634
		Examiner Name	Zitomer, S.
		Attorney Docket Number	02-020666US 02-020532US

BB	5,965,358		Huse	09-21-1999	
BC	5,965,415		Radman et al.	10-12-1999	
BD	6,001,574		Short	12-14-1999	
BE	6,004,788		Short	12-21-1999	
BF	6,015,694		Dubenskey et al.	01-18-2000	
BG	6,030,779		Short	02-29-2000	
BH	6,051,049		Hansen et al.	04-18-2000	
BI	6,054,267		Short	04-25-2000	
BJ	6,057,103		Short	05-02-2000	
BK	6,071,889		Weiss et al.	06-06-2000	
BL	6,074,853		Pati et al.	06-13-2000	
BM	6,087,177		Wohlstadter	07-11-2000	
BN	6,093,873		Chambon et al.	07-25-2000	
BO	6,096,548		Stemmer	08-01-2000	
BP	6,114,115		Wagner, Jr.	09-05-2000	
BQ	6,117,679		Stemmer	09-12-2000	
BR	6,132,970		Stemmer	10-17-2000	
BS	6,153,410		Arnold et al.	11-28-2000	
BT	6,159,687		Vind	12-12-2000	
BU	6,171,820	B1	Short	01-09-2001	
BV	6,174,673	B1	Short et al.	01-16-2001	
BW	6,168,919	B1	Short	01-02-2001	
BX	6,177,263	B1	Arnold et al.	01-23-2001	
BY	5,795,747		Henco	08-18-1998	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Case No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
	BZ	EP	0 544 809	B1	Ixsys, Inc.	12-16-1998		
	CA	EP	0 563 296	B1	Ixsys, Inc.	03-17-1999		

Examiner Signature	<i>[Signature]</i>	Date Considered	12/11/03
--------------------	--------------------	-----------------	----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

Substitute for form 1449A-B/PTO		Complete if Known			
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	087769,062 09/95 7,672		
COPY FROM PARENT (use as many sheets as necessary)		Filing Date	December 18, 1996 07/12/2001		
		First Named Inventor	Phillip A. Patten		
		Group Art Unit	1634		
		Examiner Name	Zitomer, S.		
		Attorney Docket Number	02-020522US 02-020522US		

CB	EP	0 652 266	B1	The Wellcome Foundation LTD.	01-19-2000	
CC	EP	0 397 463	A2	Berlex Laboratories	11-14-1990	
CD	EP	0 397 463	A3	Berlex Laboratories	11-14-1990	
CE	WO	90/14424	A1	Scripps Clinic and Research Foundation	11-29-1990	
CF	WO	92/06176	A1	IXSYS, Inc	04-16-1992	
CG	WO	92/18645	A1	Henco	10-29-1992	
CH	WO	93/01282	A1	Berlex Laboratories, Inc.	01-21-1993	
CI	WO	93/18175	A1	Life Technologies, Inc.	09-16-1993	
CJ	WO	93/19172	A1	Cambridge Antibody Technology LTD.	09-30-1993	
CK	WO	94/11496	A1	IXSYS, Inc	05-26-1994	
CL	WO	97/46670	A1	Massachusetts Institute of Technology	12-11-1997	
CM	WO	99/29902	A1	California Institute of Technology	06-17-1999	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
	CN	ADEY ET AL. "Preparation of second-generation phage libraries." <i>Proteins</i> 227-291. (1996)	
	CO	Berger et al. "Prospective: Expanding the Potential of Restriction Endonucleases: Use of Hapaxotermistic Enzymes." <i>Anal Biochemistry</i> 222:1-8 (1994)	
	CP	Biotransformations Amer Soc. Abstract no.11-21&11-25 Pg.26 (July 1989)	
	CQ	CARTER "Improved Oligonucleotide-Directed Mutagenesis Usinf M13 Vectors." <i>Methods of Enzymology</i> 154:382-403 (1985)	
	CR	COLLET ET AL. "A binary plasmid system for shuffling combinational antibody libraries." <i>Proc. Natl. Acad. Sci. USA</i> 89(21):10026-10030 (1992)	
	CS	DANGL ET AL. "Rapid Isolation of Cloned Isotype Switch Variants Using Fluorescent Activated Cell Sorting." <i>Cytometry</i> 2(6):395-401 (1982)	
✓	CT	DIERICK ET AL. "Incorporation of dITP of 7-deaza dGTP during PCR improves sequencing of the product." <i>Nuc. Acid Res.</i> 21(18):4427-4428 (1993)	

Examiner Signature	<i>ln</i>	Date Considered	12/11/07
--------------------	-----------	-----------------	----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

Substitute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>Use separate sheet as necessary</i> COPY FROM PARENT		Complete if Known
		Application Number <i>06/769,062 07/954,697</i>
		Filing Date <i>December 19, 1996 09/12/2001</i>
		First Named Inventor <i>Phillip A. Patten</i>
		Group Art Unit <i>1634</i>
		Examiner Name <i>Zitomer, S.</i>
		Attorney Docket Number <i>02-020500US 02 - 02-05220X</i>

CU	FULLEN ET AL. "Genetic Algorithms and Recursive Ensemble Mutagenesis in Protein Engineering." Complex. Inrt. 94, from website (1992)
CV	HEDA ET AL. "A simple in vitro site directed mutagenesis of concatamerized cDNA by inverse polymerase chain reaction." <i>Nuc. Acids Res.</i> 20(19):5241-5242 (1992)
CW	HIGUCHI ET AL. "A general method of in vitro preparation and specific mutagenesis of DNA fragments study of protein and DNA interactions." <i>Nuc. Acids Res.</i> 16(15):7351-7367 (1988)
CX	HODGSON "The Whys and Wherefores of DNA Amplification." <i>Biotechnology</i> 11(8):940-942 (1993)
CY	Kang et al. "Antibody redesigned by chain shuffling from random combinatorial immunoglobulin libraries." <i>Proc. Natl. Acad. Sci. USA</i> 88(24):11120-11123 (1991)
CZ	KLUG ET AL. "Creating chimeric molecules by PCR directed homologous DNA recombination." <i>Nuc. Acids. Res.</i> 19(10):2793 (1991)
DA	KOMANO ET AL. "Distribution of Shufflon among Incl Plasmids." <i>J. Bacteriology</i> 169(11):5317-5319. (1987)
DB	KOMANO ET AL. "Physical and Genetic Analysis of Incl2 Plasmid R721: Evidence for the Presence of Shufflon." <i>Plasmid</i> 23:248-251. (1991)
DC	KRAMER & FRITZ "Oligonucleotide-Directed Construction of Mutations via Gapped Duplex DNA." <i>Methods of Enzymology</i> 154:350-367 (1978)
DD	Kunkel "Rapid and Efficient Site-Specific Mutagenesis without Phenotypic Selection." <i>Methods in Enzymology</i> 154:367-382 (1987)
DE	KUNKEL "Rapid and efficient site-specific mutagenesis without phenotype selection." <i>Proc. Natl. Acad. Sci. USA</i> 82:488-492 (1985)
DF	LOWNAM ET AL. "Affinity Maturation of Human Growth Hormone by Monavalent Phage Display." <i>J. Mol. Biol.</i> 234:654-578 (1993)
DG	MAJUMDER "Ligation-free gene synthesis by PCR: synthesis and mutagenesis at multiple loci of a chimeric gene encoding OmpA signal peptide and hirudin." <i>Gene</i> 110(1):89-94 (1992)
DH	MERYHANS ET AL. "DNA recombination during PCR." <i>Nuc. Acids. Res.</i> 18(7):1687-1691 (1990)
DI	MICHAEL "Thremostable Ligase-Mediated Incorporation of Mutagenic Oligonucleotides During PCR Amplification." <i>Meth. In Mol. Biol.</i> 67:189-195 (1997)
DJ	NER ET AL. "Laboratory Methods." <i>DNA</i> 7:127-134 (1988)
DK	OLSEN ET AL. "Hybrid <i>Bacillus</i> (1-3,1-4)- β -glucanases: engineering thermostable enzymes by construction of hybrid genes." <i>Mol. Gen. Genet.</i> 225(2):177-185 (1987)
DL	REIKOFSKI & TAO "Polymerase Chain Reaction (PCR) Techniques for Site-directed Mutagenesis." <i>Biotech Adv.</i> 10:535-547(1992)
DM	ROBLES ET AL. "Hydropathy and Molar Volume Constraints on Combinatorial Mutants of the Photosynthetic Reaction Center." <i>J. Mol. Biol.</i> , 232:242-252 (1993)
DN	ROUWENDAL ET AL. "Simultaneous Mutagenesis of Multiple Sites: Application of the Ligase Chain Reaction Using PCR Products Instead of Oligonucleotides." <i>Biotechniques</i> 15(1):68-70, 72-74, 76 (1993)
DO	SANDHU ET AL. "Dual Asymmetric PCR: One-Step Construction of Synthetic Genes." <i>Biotechniques</i> 12(01):14-16 (1992)

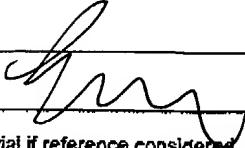
Examiner Signature	<i>[Signature]</i>	Date Considered	12/11/07
--------------------	--------------------	-----------------	----------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99, OMB 0651-0031

Substitute for form 1449A-B/PTO		Complete if Known
INFORMATION DISCLOSURE STATEMENT BY PARENT		Application Number <u>09/789,062 09/954,692</u>
COPY FROM PARENT		Filing Date <u>December 18, 1996 02/12/2001</u>
(use as many sheets as necessary)		First Named Inventor <u>Phillip A. Patten</u>
		Group Art Unit <u>1634</u>
		Examiner Name <u>Zitomer, S.</u>
		Attorney Docket Number <u>02-0205000US 02-20522US</u>

DP	SHI ET AL. "Rapid PCR Construction of a Gene Containing Lym-1 Antibody Variable Regions." <i>PCS Meth. & Appl.</i> 3:46-52 (1993)
DQ	SHULDINER ET AL. "Hybrid DNA artifact from PCR of closely related target sequences." <i>Nus. Acids Res.</i> 17(11):4409 (1989)
DR	SMITH ET AL. "Localized sex in Bacteria." <i>Nature</i> 349:29-31 (1991)
DS	Statutory Declaration by Mae Li Gan No. 703264
DT	Statutory Declaration by Ngarie Petit-Young No. 703264
DU	Statutory Declaration by Ruth Bird No. 703264
DV	STEMMER ET AL. "A 20-Minute Ethidium Bromide High-salt Extraction Protocol for Plasmid DNA." <i>Biotechniques</i> 10(6):726 (1991)
DW	STEMMER ET AL. "Enzymatic Inverse PCR-A Restriction Cite Independent, Single-Fragment Method for High-Efficiency, Site-Directed Mutagenesis." <i>Biotechniques</i> 13(2):214. (1992)
DX	STEMMER ET AL. (1991) R342 "Expression of Antibody By Fragments Specific for a Heavy Metal Chelate (indium EDTA) in E-Coli." <i>J. Cell Biochem</i> 217
DY	STEMMER ET AL. "Increased Antibody Expression for Escherichia-Coli Through Wobble-Base Library Mutagenesis by Enzymatic Inverse PCR." <i>Gene</i> 123(1):1-7. (1993)
DZ	WU ET AL. "Allele-specific enzymatic amplification of β -globin genomic DNA for diagnosis of sickle cell anemia." <i>Proc. Natl. Acad. Sci</i> Vol 86:2757-2760. (1999)
EA	ZOLLER & SMITH "Oligonucleotide-Directed Mutagenesis: A Simple Method using Two Oligonucleotide Primers and a Single-Stranded DNA Template." <i>Methods in Enzymology</i> 154:329-347 (1987)

Examiner Signature		Date Considered	<u>12/11/03</u>
-----------------------	---	--------------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Modified) PTO/SB/08A-B (10-98)

<p>Substitute for form 1449A-B/PTO</p> <p>INFORMATION DISCLOSURE STATEMENT <i>BY PARENT</i></p> <p>COPY FROM PARENT</p> <p>(use as many sheets as necessary)</p>	<p>Complete if Known</p> <table border="1"> <tr> <td>Application Number</td> <td>08/769,062 09/954,692</td> </tr> <tr> <td>Filing Date</td> <td>December 18, 1996 09/12/2001</td> </tr> <tr> <td>First Named Inventor</td> <td>Phillip A. Patten</td> </tr> <tr> <td>Group Art Unit</td> <td>1634</td> </tr> <tr> <td>Examiner Name</td> <td>Zitomer, S.</td> </tr> <tr> <td>Attorney Docket Number</td> <td>02-020500US 02-020522US</td> </tr> </table>	Application Number	08/769,062 09/954,692	Filing Date	December 18, 1996 09/12/2001	First Named Inventor	Phillip A. Patten	Group Art Unit	1634	Examiner Name	Zitomer, S.	Attorney Docket Number	02-020500US 02-020522US
Application Number	08/769,062 09/954,692												
Filing Date	December 18, 1996 09/12/2001												
First Named Inventor	Phillip A. Patten												
Group Art Unit	1634												
Examiner Name	Zitomer, S.												
Attorney Docket Number	02-020500US 02-020522US												

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant Passages or Relevant Figures Appeal
		Number	Kind Code (If known)			
AA	5,665,859			Wallach et al.	09-09-1997	
AB	5,741,694			Hasrtup et al.	04-21-1998	
AC	5,750,373			Garrard et al.	05-12-1998	
AD	5,427,930			Birkenmeyer et al.	06-27-1995	
AE	5,792,607			Backman et al.	08-11-1998	

FOREIGN PATENT DOCUMENTS

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Page 1 of 1

Reference Designation

U.S. PATENT DOCUMENTS

Part 1

Examiner Initial	Document No.	Date	Name	Class	Sub-class	Filing Date 10/26/96
AA	5,316,935	05/31/94	Arnold et al.			
AB	5,834,252	11/10/98	Stemmer et al.			
AC	5,837,458	11/17/98	Minshull et al.			

FOREIGN PATENT DOCUMENTS

Part 2

	Document No.	Date	Country	Class	Sub-class	Transl. (Yes/No)
AD	WO 91/07506	05/30/91	PCT			
AE	WO 91/15581	10/17/91	PCT			
AF	WO 91/16427	10/31/91	PCT			
AG	WO 95/22625	08/24/95	PCT			
AH	WO 96/33207	10/24/96	PCT			

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

Part 3

AI	Balint et al., "Antibody Engineering By Parsimonious Mutagenesis", <i>Gene</i> , 137(1):109-118 (1993)
AJ	Bartel et al., "Isolation of New Ribozymes From a Large Pool of Random Sequences", <i>Science</i> , 261:1411-1411 (1993)
AK	Cramer et al., "Combinatorial Multiple Cassette Mutagenesis Creates All The Permutations Of Mutant And Wild-Type Sequences", <i>Biotechniques</i> , 18(2):194-196 (1995)
AL	Cramer et al., "Improved Green Fluorescent Protein By Molecular Evolution Using DNA Shuffling", <i>Nat. Biotechnol.</i> , 14(3):315-319 (1996) (previously submitted)
AM	Cramer et al., "Construction And Evolution Of Antibody-Phage Libraries By DNA Shuffling", <i>Nat. Med.</i> , 2(1):100-102 (1996) (previously submitted)
AN	Cramer et al., "Molecular Evolution Of An Arsenate Detoxification Pathway By DNA Shuffling", <i>Nat. Biotechnol.</i> , 15(5):436-438 (1997)
AO	Cramer et al., "DNA Shuffling Of A Family Of Genes From Diverse Species Accelerates Directed Evolution", <i>Nature</i> , 391(3664):288-291 (1998)
AP	Gates et al., "Affinity Selective Isolation Of Ligands From Peptide Libraries Through Display On A Lac Repressor 'Headpiece Dimer'", <i>J. Mol. Biol.</i> , 255(3):373-386 (1996) (previously submitted)
AQ	Gram et al., "In Vitro Selection and Affinity Maturation of Antibodies From a Naïve Combinatorial Immunoglobulin Library", <i>Proc. Natl. Acad. Sci. USA</i> , 89:3576-3580 (1992)
AR	Near, "Gene Conversion Of Immunoglobulin Variable Regions In Mutagenesis Cassettes By Replacement PCR", <i>Biotechniques</i> , 12(1):88-97 (1992)
AS	Perlak, "Single Step Large Scale Site-Directed In Vitro Mutagenesis Using Multiple Oligonucleotides", <i>Nucleic Acids Res.</i> , 18(24):7457-7458 (1990)
AT	Stemmer, "Searching Sequence Space", <i>Biotechnology</i> , 13:549-553 (1995) (previously submitted)
AU	Stemmer et al., "Single-Step Assembly Of A Gene And Entire Plasmid From Large Numbers Of Oligodeoxyribonucleotides", <i>Gene</i> , 164(1):49-53 (1995) (previously submitted)
AV	Stemmer, "The Evolution of Molecular Computation", <i>Science</i> , 270(5241):1510 (1995) (previously submitted)
AW	Stemmer, "Sexual PCR and Assembly PCR" <i>Encyclopedia Mol. Biol.</i> , VCH Publishers, New York, pp. 447-457 (1996)
AX	Weber et al., "Formation of Genes Coding for Hybrid Proteins by Recombination Between Related, Cloned Genes in E. Coli", <i>Nucleic Acids Research</i> , 11(16):5661-5669 (1983)
AY	Weisberg et al., "Simultaneous Mutagenesis Of Multiple Sites: Application Of The Ligase Chain Reaction Using PCR Products Instead Of Oligonucleotides", <i>Biotechniques</i> , 15(1):68-76 (1993)

FORM PTO-1449 (Modified)		Attorney Docket No.: <u>1009-02-0203200</u> Application No.: <u>08/621,833</u>
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant: Stemmer et al. <u>massey et al</u>
AZ	Filing Date: March 25, 1996 Group: 1634	
BA	Zhang et al., "Directed Evolution Of A Fucosidase From A Galactosidase By DNA Shuffling And Screening", <u>Proc. Natl. Acad. Sci. USA</u> , 94(9):4504-4509 (1997)	
EXAMINER	DATE CONSIDERED	<u>12/4/03</u>

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

PA 177746 v1

COPY FROM PARENT

J1050 U.S. PTO
09/954692

09/12/01